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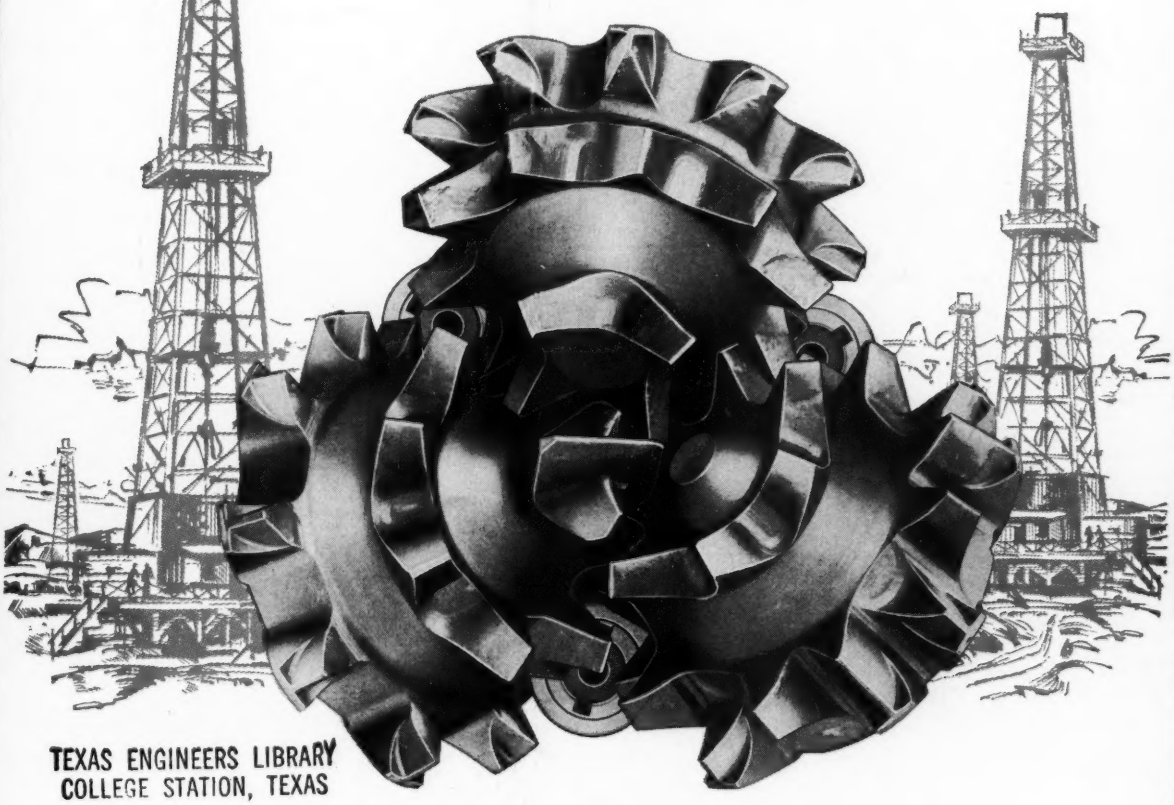

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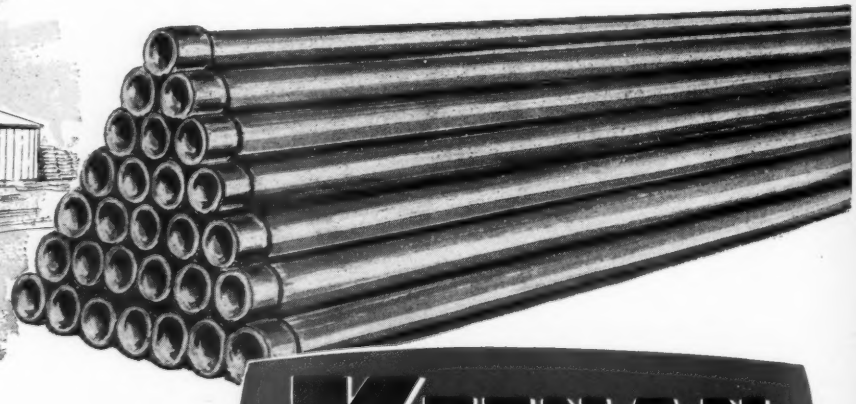

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CALIFORNIA
OIL WORLD

PUBLISHED TWICE A MONTH
By
PETROLEUM PUBLISHERS, INC.

KINZIE MILLER—President and Editor • RICHARD SNEDDON—Contributing Editor
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2404 WEST 7th STREET, LOS ANGELES 57, CALIFORNIA • DUnkirk 2-6218
BRANCH OFFICES
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CLEVELAND—HOWARD F. McCLENAHAN—1900 Euclid Ave., Cleveland 15
NEW YORK—JAY TUTHILL—501 FIFTH AVENUE, NEW YORK 17
WASHINGTON, D.C. CORRESPONDENT—LORANIA K. FRANCIS

AUDITED PAID CIRCULATION ABC

• SECOND ISSUE
JULY, 1961
VOL. 54 • NO. 14
WHOLE NO. 2068
July 31, 1961

California Oil World is published twice a month at 2404 West 7th St., Los Angeles 57, California. Second-Class Postage Paid at Los Angeles, California. Subscription price $1 per year in U. S. and possessions, $2 in foreign countries including Canada.

California Natural Gas — A Look Ahead

Natural gas has been much in the news in recent months, due to—

1. The protracted hearings before the California Public Utilities Commission over the proposed pipe line from Texas through Northern Mexico and into California to supply gas to the Southern California Edison Co. steam plants in Southern California. The Southern California and Southern Counties Gas Companies are opposing this project.

2. Various rulings on the proposed Rock Springs gas pipe line from Wyoming to Southern California to supplement the out-of-state supplies already being received by the gas utilities.

3. The controversy over Senate Bill No. 1268, which would have required non-public utility companies to obtain a State Public Utilities Commission permit before building natural gas pipe lines with which to supply industrial customers. This bill has been referred to an interim committee for a two-year study.

It goes without saying that the production of natural gas is a very important activity of the California oil industry, and that the present situation and future outlook of the gas producer is worthy of discussion here.

Market Situation—Oil Well Gas

In the past the gas-purchasing companies in California have taken oil well gas as it is produced from day to day. It is possible, however, that the California producer may find it more difficult in the future to obtain as ready a market for new discoveries of oil well gas. The gas companies have incurred very large take-or-pay obligations for out-of-state gas and are therefore limited in their ability to provide an outlet for major future discoveries of California gas.

Market Situation—Dry Gas Fields

In the Sacramento Valley, a number of recently discovered dry gas fields have not yet been connected to P. G. & E.'s system. On an annual basis, P. G. & E.'s average daily takings from other dry gas fields in this area are between one-fourth and one-third of field M. E. R.'s.

Recent figures indicate that there are approximately 180 shut-in gas wells in the Sacramento Valley.

Gas reserves and deliverability in the Sacramento Valley are receiving less than a full potential outlet for the same general reasons, relating to commitments for imported gas, as described above under oil well gas.

San Joaquin Valley gas fields are also affected, since there were at last count some 90 wells shut in.

Statewide there are nearly 300 gas wells shut in out of some 950 wells, usually for lack of an outlet to the gas utility gathering lines.

Current Production—Oil Well Gas

The Conservation Committee of California Oil Producers issued a report in April, 1961, which gave the following daily figures on gas production from oil fields as of the latest month available:

Total wet gas produced	1,723,243 MCF/D
Less gas injected	609,273 MCF/D
Total net formation withdrawals	1,113,970 MCF/D

Thus it will be seen that something over 1,100,000,000 cubic feet per day of oil well gas is being marketed or used in operations, and an additional 600,000,000 cubic feet per day is being reinjected into formation.

Current Production—Dry Gas Fields

A recent report by California Natural Gasoline Association gives an average figure of deliveries to the gas companies from dry gas fields at 497 million cubic feet per day.

From facts mentioned under Market Situation—Dry Gas Fields, it is obvious that, given a market, the current production from dry gas fields would be notably higher than it is; certainly production could be easily doubled.

California Gas Reserves

Estimates of California gas reserves, as published by the Gas Reserves Committee of the American Gas Association, are shown in four categories. As of the beginning of 1961 these reserves, in trillions of cubic feet, were estimated as follows:

(a) Associated 1.963
This is free gas in contact with crude oil in the reservoir, where the productoin of such gas is significantly affected by the production of crude oil.

(b) Dissolved 4.249
This is gas in solution with crude oil in the reservoirs.

(c) Non-Associated 2.510
This is free gas **not** in contact with crude oil in the reservoir, and free gas in contact with oil where the production of such gas is **not** significantly affected by the production of crude oil.

(d) Underground Storage..0.122
This is gas held in underground

reservoirs (including native and net injected gas) for storage purposes.

Classifications (a) and (b) consist entirely of oil well gas.

Classifications (c) and (d) comprise dry gas principally.

In summary, this indicates estimated proven reserves of oil well gas of about 6¼ trillion cubic feet and dry gas of about 2-3/5 trillion cubic feet, or a total of nearly 9 trillion cubic feet.

At present production rates this is about a 17-year supply.

Natural Gas Prices

Natural gas prices are the subject of negotiation between buyer and seller, so that no exact price can be stated, as would be the case where prices are posted—for crude oil, as an instance.

Certain generalizations may be made. For example, it is understood that the going price for gas in Southern California would be about 29 cents or 30 cents per thousand cubic feet.

In the San Joaquin Valley prices tend to be a shade higher, running from perhaps 29 cents to 32 cents per thousand cubic feet.

A recent contract in the Sacramento Valley was announced at a price of 28 cents per thousand cubic feet.

In the case of the gas utilities and the huge quantity of gas they are taking at the California border, the prices are said to average about 34 cents per thousand cubic feet, and as high as 36 cents. In the hearings before the Public Utilities Commission regarding new pipe lines, much mention is made of future prices pegged at a top of 42 cents per thousand cubic feet.

Pacific Lighting Gas Supply Company has made contracts with producers during the past two years for a significant percentage of Southern California and San Joaquin Valley gas. These contracts run from a minimum of 20 years to a maximum of 35 years. If terminated in 20 years the producer takes a penalty on price.

Under these contracts the producers agree to sell the utility all the gas they have available for disposal and the utility agrees to take all this gas within economic limits.

The 1962 price will be the general average at the border.

Gas Producers' Problem

The gas producer has a problem in connection with marketing his gas. The oil well gas producer's problem would arise immediately upon the discovery of any large new supply, since finding an outlet with the gas companies might be difficult.

The dry gas producer's problem is already acute, since much of the gas already discovered cannot at this time be sold to the gas companies.

Due to the dynamic nature of the oil industry, it is almost certain that significant new supplies of gas will be found.

Under these conditions the question of the economic feasibility of constructing one or more pipe lines to supply gas to large industrial consumers must be considered.

Richfield Case

Several years ago Richfield constructed a pipe line to deliver natural gas to Southern California Edison Company's Mandalay steam plant in Ventura County. Legal action was taken against Richfield by the gas utility companies charging that it was against the law to construct such a line without approval of the P.U.C. Other violations of law were also alleged.

The final result of this was a complete victory for Richfield when the California Supreme Court ruled that they were not subject to P.U.C. jurisdiction in constructing the pipe line.

Many observers feel that the success of Richfield in avoiding Public Utilities Commission regulation triggered the introduction of Senate Bill No. 1268 in the last session of the California Legislature.

Senate Bill No. 1268

Senate Bill No. 1268 would have required non-public utility companies to obtain a state Public Utilities Commission permit before building natural gas pipe lines with which to supply industrial customers.

A hearing was held in Sacramento before the Public Utilities Committee of the Senate at which the important oil industry associations and a number of independent gas producers testified, all strongly opposing the legislation. Among those appearing were representatives of Western Oil and Gas Association, Oil Producers Agency and the Conservation Committee of California Oil Producers.

Their arguments, in summary, were that while the gas utility companies own the major pipe lines, they will not act as common carriers and are not required to purchase gas from California producers, even though the law requires oil producers to dispose of any gas they produce. It was pointed out that legislation of this type would close the last remaining opening for the producer to market his gas when the utilities refused to take it. That many gas fields are already shut in because of this refusal. Also that Public Utilities Commission control of the oil and gas industry in this instance would give the gas utilities a monopoly over the production and distribution of California's natural gas.

The gas utility companies were in complete support of Senate Bill No. 1268.

Following the Sacramento hearing, S. B. No. 1268 was referred to an interim committee for a two-year study.

What Next?

Much work needs to be done in the next year and one-half regarding S. B. No. 1268. The committee will no doubt hold interim hearings which will require strong testimony from the oil industry. Also a campaign of information and education seems called for, directed both to members of the legislature and the general public. Such a campaign might make it possible to defeat this legislation in 1963. Otherwise the industry might be in trouble.

Since the gas utilities supported S. B. No. 1268, it can be expected that they will be active in promoting the measure during the interim and before the 1963 legislature session.

As to the dry gas producers, chiefly in the Sacramento Valley, who are the ones hurting most at present for lack of an outlet, it is understood that up to this time they have received no encouragement that the P. G. & E. will soon take their gas.

There have been rumors that producers in this area and perhaps others have been seriously considering the idea of building their own pipe line and selling to large industrial customers.

This would seem to be a great idea

if it proves sound in economics. There is more to it than that, however.

On the favorable side is the Richfield decision, but it must be remembered that this case involved one supplier selling to one customer. How the courts would rule in a case involving more than one supplier and more than one customer remains to be seen.

Also, if the line were not completed before 1963, legislation like S. B. No. 1268 would be a big threat.

Thus it can be seen that the gas producer has grave problems. Many of the dry gas producers have them now. The oil well gas producers may have them when new discoveries are made.

If the gas utilities are unwilling or unable to take this gas, it follows that the producers must find other markets. Pipe lines are necessary to transport the gas to large consumers. If the producers can build their own lines and sell direct, well and good. If not, it would appear that some other agency must be found to build the lines.

Statement by Natural Gas Committee, Independent Petroleum Association of America, July 18, 1961, Dallas, Texas

The Independent Petroleum Association of America has long held the position that the local function of producing and gathering natural gas should be free from federal controls. Developments since the Phillips decision in 1954 have justified this position. Today there is widespread recognition that efforts to regulate the gas producer have been futile, unworkable and inadvisable.

In order to correct the present impossible situation, this committee believes that H.R. 7575, introduced by Congressman Oren Harris of Arkansas, represents a sincere and serious effort to meet a crucial industrial problem. It provides a vehicle for legislative action to assure development of adequate consumer supplies of natural gas, second-most important energy source in America.

The great need which this committee now foresees and urges is immediate hearings on H.R. 7575 by the proper committees of the Congress.

Certain provisions of this bill deserve careful analysis and consideration by the Congress and by the industry. These include the exemption of small producers of gas as well as the provision which would prohibit a natural gas company from applying for a rate increase while a previous rate application is pending.

The committee recommends, therefore, that the members of the Association diligently work for hearings, consideration and action by the Congress on H.R. 7575, or other appropriate legislation to solve the long-standing problem presented by unworkable federal regulation of producers of natural gas.

TOOLS OF HIS TRADES—William Shepherd of Glendale displays some of the tools he used as he set a new, all-time national record for service by employees of Shell Oil Company. This month, Shepherd will have been with Shell for 46 years and 6 months. Presently the auditor of disbursements in Shell's Pacific Coast area treasury department, Shepherd also has held jobs illustrated here—stock clerk, accountant, blacksmith, chief clerk, painter, laborer, cook, statistical researcher, carpenter, telephone operator, and others. For a while back in the 1920s Shepherd worked as a rotary helper on a drilling rig, represented by the oil man's hard hat he is holding.

State Exploration Begins Drilling

State Exploration Company, Los Angeles, announced drilling has been started on a 4400-acre oil prospect. The well, State Exploration Company Masonite No. 1, is located 600 feet south, 400 feet west of the center of section 18, T3N, R9W, Perry County, Mississippi.

Drilling is programmed initially to penetrate objective Lower Tuscaloosa sands at 9300 feet. If the geology is confirmed, drilling will be continued to 11,800 feet and 12,800 feet to penetrate Dantzler and Paluxy sands.

Drilling operations are being conducted by State, which has a one-third working interest. Operating partners are McCulloch Oil Corp. of California, V. P. Baker-A. J. West, and Tuscalo Oil & Gas Co. of Calif.

UOP to Reduce Three Product Prices Aug. 1

Universal Oil Products Co. on August 1 will reduce prices of three antioxidants and antiozonants 10 cents a pound, M. R. Schrein, senior vice president, announced. The products are used in gasoline and rubber products.

"The reductions are made possible through increased efficiency in manufacturing operations and expanded throughput," Schrein said.

Products involved are UOP 88, UOP 88-S and UOP 288. Delivered prices east of the Rocky Mountains for each product will be 94 cents a pound in truckload quantities, 95 cents a pound for 2,000-pound lots, and 97 cents a pound for drum quantity shipments. Prices are 2 cents a pound more for delivery west of the Rockies.

UOP 88 is used to resist oxidation of gasoline and as an antiozonant for rubber. UOP 88-S is formulated for inhibitor sweetening of gasoline, and UOP 288 inhibits ozone cracking of rubber goods.

Reserve Oil Co. Gas Wells Improve

Reserve Oil and Gas Company reports significantly improved flowing rates from two recent gas well completions at Liberty Island Gas Field, Solano County. On test conducted by P. G. & E., well Liberty Farms-Reynolds No. 4 flowed 7,550,000 cubic feet of gas per day on a 28/64-inch choke at 1500 lbs. pressure. Well No. 5 flowed 2,500,000 cubic feet per day on a 16/64-inch choke at 1530 lbs. pressure. Construction of pipe line connections to four Reserve gas wells in this field is under way by P. G. & E. and should be completed by August 1, 1961.

In San Joaquin County, six miles north of Stockton, Reserve is participating with Kern County Land Company in an exploratory play involving approximately 3400 acres.

R. O. Boykin Elected CNGA President

Robert O. Boykin

The board of directors of the California Natural Gasoline Association announced this month that Robert O. Boykin has been elected president of the association for the fiscal year 1961-1962. He has been a member of CNGA for 22 years, during which time he has served as chairman of several of its committees and as its vice president.

Mr. Boykin was born in Tucson, Arizona, and received his early schooling in Los Angeles. After graduation from Caltech in 1934, he became a petroleum engineer for the Barnsdall Oil Company. During World War II he was a mechanical engineer at Caltech in the Navy's rocket development program. In 1944 he joined the Fullerton Oil Company as petroleum engineer, and in 1948 became manager of that company's gasoline plants. He continued this work with Fullerton Oil Company's successor, the Monterey Oil Company, and now is a staff engineer with the Humble Oil and Refining Company, who purchased Monterey's properties in January, 1961. Mr. Boykin is a registered mechanical and petroleum engineer, holds patents in rocket instrumentation and oil well testing, and is a member of the Society of Petroleum Engineers, The Engineers Club of Los Angeles, and the Los Angeles Athletic Club.

In commenting to the association's directors on the year ahead, Boykin stressed the rapid rate of progress in the hydrocarbon processing industries and pointed out that this brings increasing complexity and leaves much work to be done in standardization if needless expense and waste of time is to be avoided.

T. S. Zajac, manager, natural gas and gasoline department, Shell Oil Company, was elected vice president. Newly elected to the board of directors for a two-year term were: R. L. Cook, Signal Oil & Gas Company; M. S. Hubbell, Lomita Gasoline Company; James McDonald, Tidewater Oil Company; C. M. Sandland, C. F. Braun & Company; L. F. Strader, Richfield Oil Corporation; and Lee Van Horn, The Fluor Corporation, Ltd.

BJ Licenses PGAC for Nuclear Magnetism Logging in California

The Byron Jackson Division of Borg-Warner Corporation has licensed Pan Geo Atlas Corporation (PGAC) to offer the Nuclear Magnetism Log in open hole logging service in California. The announcement was jointly made by Andrew W. Rose of Byron Jackson and Paul Charrin, president of Pan Geo Atlas.

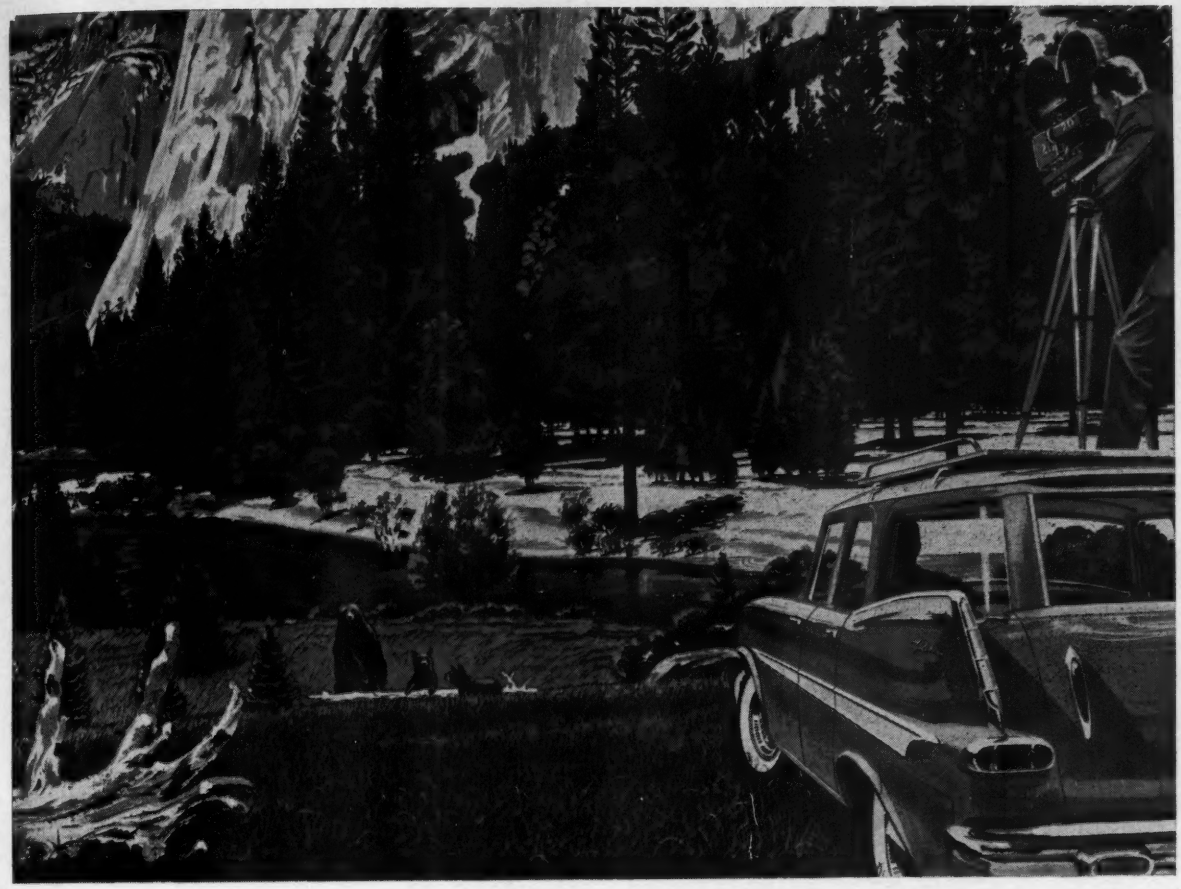
The Nuclear Magnetism Log (NML) provides a direct, quantitative reading of free fluids within a formation and indicates whether these fluids are water or hydrocarbon in nature. This patented logging method has been in development testing use by oil companies for more than two years, but the California license to PGAC represents its first commercial availability.

Arrangements have also been made for PGAC to use the California field station facilities of BJ Service, a Borg-Warner subsidiary. The first NML unit is now in service out of the Bakersfield station.

Keenan Pipe & Supply Appointed Distributor for ACF Lub. Plug Valves

Appointment of Keenan Pipe & Supply Co. as distributor in Southern California, Arizona, Nevada and Colorado for ACF Lubricated Plug Valves manufactured by the W-K-M Division of ACF Industries, has been announced by P. T. Keenan, president. These valves are made in a large variety of sizes and types and are widely used in the oil, chemical, water treatment, sewage and other industries. ACF Diamond Port Valves have many applications in the air conditioning industry. Stocks will be maintained by Keenan in Los Angeles, Bakersfield, North Hollywood, San Bernardino, San Diego, Las Vegas, Tucson, Phoenix, and Denver. Descriptive catalogs and other information are available at any Keenan location.

Keenan also stocks many thousands of items in all the branches of other well known lines.



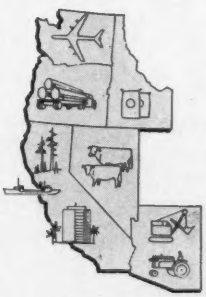
This Movie Is Made for the Animals

Although nature's creatures will never see this film, it's made for *them*. One of a series produced by Richfield Oil Corporation, its purpose is to create greater public interest in conserving *all* our natural resources: wild life, forests, grasslands, water, oil and minerals.

Last year alone, over 14-million persons viewed these award-winning Richfield films. Among the most popular is "Let's Keep America Beautiful," showing how, through education, our scenic and recreational areas can be left litter-free.

Other films cover subjects ranging from Western wild flowers to the natural resources of our Western States, including Alaska.

Produced in cooperation with the United States Bureau of Mines, the state natural resources films are distributed in the West by Richfield and nationally by the Bureau. These and other films are made available to thousands of organizations each year as a public service. Richfield is proud to play a part in the conservation of America's greatest material wealth . . . her natural resources.



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Petroleum LORE and LINGO

By RICHARD SNEDDON

Preparatory

Back in 1927, having done some of the development work on a projected ethyl gasoline program for Union Oil Company, I was delegated to go up through Oregon, Washington and Canada preaching the virtues of ethyl to our service station operators, dealers, distributors and automobile sales and service people. I could be wrong, but I believe that in 1925 I analyzed the first sample of tetraethyl lead ever to reach the West Coast. Be that as it may, Union and Associated were the pioneer marketers of ethyl out here and my assignment was designed to break the news just in advance of placing the new fuel on the market. I had done little or no public speaking up to this time, and in order to prepare myself for the junket I joined the Toastmasters' Club. And if I do say so, I captured more fifth prizes than anyone else in the organization.

Background

We used to have an occasional novelty session, and one of these I remember very distinctly. It was called "backward night," and that was a perfectly proper name. At dinner the dessert was served first and we all went all the way through the menu in reverse to the soup. Usually we had five speakers and five critics to analyze their performance when they were through, but this night the critics lambasted the speakers unmercifully before they had spoken. I happened to be one of the speakers and I had prepared an idiotic dissertation with my conclusions at the beginning and the "Mr. Toastmaster and Fellow Toastmasters" at the end. In order to make it more backward than ever, I stood with my back to the audience and delivered my oration. I had very foolishly told one of the members what I was going to do and he had tipped off the rest, so when I turned around to take my bow, there wasn't a soul in the place.

Lingering With the Web-Footed

My trip into the Northwest was an interesting jaunt during which I became well acquainted with sales people of great variety in all the cities as well as in the remotest little villages. I had a small cutaway motor that I used to explain the basic operation of the Otto cycle engine. Then I told the facts leading to the discovery of tetraethyl lead, which I still think is as fascinating a bit of research as you will find in any industrial story. My talks took place sometimes in dull, poorly lighted garages for a few mechanics, sometimes in hotel banquet rooms for several hundred city businessmen, and after my first few appearances my troubles were over. I stopped trembling every time I arose to start my performance and I soon became familiar with the answers to all the questions that were likely to be asked, so that I was completely at ease. The local managers took me to see the cheese factories at Tillamook, the fish hatcheries at Astoria, lumber and paper mills at Oregon City, and I can even remember calling on a dealer along the Columbia River Highway somewhere who kept a couple of sheep to mow the lawn in front of his service station.

Thence to Seattle

Up in Washington I visited with the famous Foss brothers, who barged all Union Oil Company products up to Alaska, probably still do. Their mother was the lady on whom Norman Riley Raine patterned his popular series of Tugboat Annie stories. Their tug, the James H. Foss, was the "Narcissus" that was piloted by Marie Dressler in the motion picture series of Tugboat Annie tales. Incidentally, the Fosses were wonderful hosts. This was in the days when the late Vic Kelly was Grand Vizier for Union up in Seattle and Jim Federspiel was his right-hand man. Kelly was quite a legend in those times, and strange stories were told about his gift of second sight. I remember one weird yarn about his having returned to his office late one evening from a business trip and having found a stenographer sobbing bitterly at her desk. He inquired why all the tears and the girl told him that she had worn a very valuable diamond ring to work that day to impress the other girls and somewhere along the way had lost it. It was her mother's and she just couldn't bear to go back home without it. Everyone on the entire staff had joined in the search for it without avail and had gone home at closing time, leaving the poor gal all to herself. As the story goes, Mr. Kelly asked her a few questions and then quite matter-of-factly told her if she would look in a certain spot she would find the missing bauble. She did exactly that and sure enough found it, or anyway that's what we were told in all sincerity by some of her co-workers.

The Grass Roots

This, for me, was a highly educational junket. As I traipsed about the country meeting with people in Seattle, Yakima, Walla Walla, Wenatchee, Tacoma, Chehalis, Okanogan, Bellingham, Spokane, and all sorts of towns, big and little, I was really seeing Northwestern life in cross-section. Everything was so lush and beautiful up there because of the rains, and people were so hospitable, that one was a cinch to have a good time. We were in the prohibition era and it was surprising to see how many people had a crock of home brew stowed under the straw in the stable or in the bushes at the bottom of the garden. In dark corners all over the Northwest, the congenial ones passed these containers around and the lad who couldn't pick one up with his forefinger, give it a sort of back-handed swing onto his shoulder and then manipulate the tilt with his elbow was looked upon

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with grave misgivings, if not outright distrust.

The Bowling Epidemic Strikes

When I returned to Los Angeles after a two-month tour, I had only been back in the research lab for a few days when I received word of my appointment as technical advisor to the transportation department with headquarters in the Los Angeles office. Before I had time to get oriented, I was conscripted by the departmental bowling team and soon discovered that here was one of the most popular indoor sports in the petroleum industry. There were intercompany leagues all over the place and enough teams in each of the larger oil companies to promote a busy schedule of games all through the winter months. In Union Oil Company they even had a telegraphic playoff between divisions for the Burnham Trophy, donated by Major Burnham of Dominguez Oilfields, Ltd., and emblematic of the all-company championship.

Leagues and Contests

The top team in each division played on its own home alley—in Vancouver, Canada, Seattle, Portland or San Francisco, as the case might be—and the southern division city and field teams did the same thing. Results were telegraphed in to local bowling headquarters from all the competing teams as the play proceeded, and the whole thing was productive of more excitement than a national election. I had bowled in Canada before coming to California and knew everything about the game excepting how to get my score up above my blood pressure. In the sporting world, indeed, I was definitely "a great unrecognized incapacity." I engaged in practically all sports to some extent and played most games, but did none of them well. My outstanding accomplishments were as follows: (1) Runner-up in my kindergarten class tether ball tournament, and (2) easy winner of a fifty-yard dash for boys under ten when I was fifteen years old. With this background, there would seem to be no reason why I should hesitate to elucidate on the burgeoning art of trundling as played by the inhabitants of the derrick groves, so if you will kindly replace your hearing aids, we shall begin.

Fundamentals

Bowling, or "knocking on wood" as it used to be called, is now one of the petroleum people's most popular pastimes. Such an obsession has it become, indeed, that the average oil man can no longer pick up any spherical object bigger than an orange unless it is equipped with finger holes. Literal thousands of workers in all departments from geological to sales are now addicted to this simple but fascinating diversion, and in their nightly excursions to the rolling hostelries are finding healthful exercise, congenial companionship, broken finger nails, and even an occasion sacroiliac slip. The game offers an ideal combination of physical jerks and mental relaxation. After a hard day of wrestling with a problem in differential calculus or even an obstinate decimal point, a man can go out after dinner with his cerebrum under wraps and give his tissues a much needed tearing down. No brain work is required. Perfection in bowling is a matter of precision, not strategy.

Origin

Those who are not familiar with the history of tenpins are inclined to assume that it is a fairly recent innovation. But it isn't! One authority claims that bowling was practiced more than 7000 years ago and some balls were discovered in a little basement alley near Los Angeles that lend heavy support to this contention. The game may be played by any number of persons from one to infinity, but a regular league team consists of five players, two of whom are large and noisy and smoke cigars. The chap who starts the action for his team is called the lead man, and he has been known to lead his mates on some weird excursions. The last player is named the anchor man, for the simple reason that if the team shows any inclination to founder he will probably be thrown overboard.

Descriptive

The bowling lane, or alley, is merely a highly polished wooden strip about the width of a prostrate pedestrian. At its far end are the pins, ten in number, arranged in the form of a triangle. They were once made from maple wood, although why anyone should do this to a tree is difficult to understand. They are now made of plastic, are shaped like Indian clubs, and a peculiar thing about them is that you must place the ball very accurately to knock them all down, but any member of the opposing team can scatter them with a single lucky shot. The ball is spherical in shape and is punctured here and there with deep indentations known as "finger holes." These facilitate a better grip; in fact, players with bulbous thumbs find it difficult to let them go. It is interesting to note that at the beginning of a game the ball weighs 16 pounds and the player 180, but by the end of the game this situation is reversed.

The League Games Begin

Across the near end of the alley is a fiendish device known as the foul line. This is the bowler's boogie man. If in delivering the ball he allows his foot to project over this line by so much as an omicron, a temperamental foul line judge goes temporarily insane, sets off a strident burglar alarm, calling the attention of everyone in the building, and so embarrassing the player that he is ashamed to go back into the place for weeks. In the bowling palace on league night, the galleries are usually stiff with players and their families. There is a brief, tense interval just after practice has stopped and just before the whistle blows to start the match. The pins have been set and the first man of each team is on his feet, balancing his bowling ball in one hand while he clutches nervously at a chalky towel with the other. Then the whistle shrieks, and urged by a chorus of noisy hoots from their teammates, the lead players swing into action.

Score Keeping

The first two opponents roll one ball each, then turn around and clap hands. If all the pins are bowled over in that first roll, only one roll is necessary. If they don't all go down, the player adopts a cheated attitude, mutters strange gutteral imprecations in his beard, and rolls one more ball. The next opposing pair repeat this process, not omitting the imprecations any time it is felt that they might be helpful. And so it goes until the five players on each team have rolled three full games and are perceptibly wilted. When the pins are all bowled over with one roll, a "strike" is called, and the neophyte may be inclined to start picketing. He must, however, stifle any such inclination—it isn't done. The count for a strike is ten plus all that can be made in the next two

rolls, a possible but improbable thirty. If all the pins are knocked over in two rolls, the player is credited with a "spare," the count for which is ten plus all that can be made on the next roll, a precarious twenty. If the player fails to get either a strike or a spare, he gets only the number of pins he has tumbled plus a statement from the captain of the team to the effect that he will certainly be missing from the lineup next week. A perfect score, that is, 300, has the same effect on a bowler as a "hole in one" has on a golfer. He is banqueted and dined to the twelve signs of the zodiac. His friends drop in for a call. His teammates call in for a drop. Finally the hero is so worn out by the whole adventure that his doctor orders him to give up bowling and go back to work for a complete rest.

Bowling Lingo

Like all American games, bowling has its own specific and colorful terminology. When the first ball rolled fails to upset all the pins and leaves two or more widely spread, this is called a "split" and other names that are taboo in the public print. If the player is shooting at two or three pins on his second roll and knocks over all but one, he gets a "cherry." Most keglers of course, prefer to get their cherries out of cocktail glasses. And, on the subject of fruit, it might be mentioned that the raspberry is also used in the bowling alley with telling effect. Two strikes in a row are a "double," and since a strike is always indicated on the score pad by a cross, this combination is sometimes referred to by the opposition as the "double cross." Three strikes in succession are genuine cause for thanksgiving, and so are termed a "turkey." To miss any shot is to "blow," and anyone who gets enough blows is likely to find himself acting as substitute come next league night.

Where to Hit

The "pocket" is a spot midway between the first pin and the next one back, usually on the right side. A ball accurately placed here normally brings a strike. The same spot on the left side is known as the "Brooklyn" side, and is the natural pocket for the southpaw bowler. The average port-sider, incidentally, is wilder than an airdale dog with the rabies. When he makes a strike he knocks all the pins not only off the alley but out of the building and occasionally takes the back wall for good measure. But he is not a consistent striker by any means. On the contrary, he is just as likely as not to wrap himself up into the semblance of a corkscrew, uncoil, heave a ball diagonally across the house and make a spare for a total stranger four lanes away. Nobody gets more exercising from bowling than a southpaw. He is more destructive to wood than a termite. You can usually tell that there is a southpaw in the alley, even if you are nowhere near him, for the minute he cuts loose, all men in the vicinity who have had military training immediately rush to their stations.

Choice of Ball

In most alleys there will be found a wide assortment of balls—enough to satisfy any conceivable taste, and some for people with no taste at all. But the real expert prefers to have his bowling ball, like his breakfast nook, made to measure. There is a pride in outright ownership that has a distinctly appreciable effect not only on the player's performance but also on the uplift of his nose. The better players roll a "hook" or curve that breaks into the pocket on either side—they hope. Spin is imparted by holding the finger holes parallel with the foul line at the instant of delivery. The initial antics lend interesting variety to the scene. Some bowlers in the preliminary gesture swing the ball up to their chests and pat it encouragingly. Others hold it in front of their faces, close one eye, and squint as if they were taking a bead on the pins through the finger holes. There are those who merely allow the ball to dangle and those who grip it fiercely, as if they would crush it to a plastic pulp.

Moving In

In approaching the foul line there is a species of kegler who walks up front briskly and lets go without the slightest hesitation. Another executes a few intricate steps from the latest jive movement. There is a fussy type of fellow who stands and shuffles like a Buff Orpington with flypaper on his feet. And there is the poor bimbo with the Leon Errrol legs who takes a few mincing steps and then heaves the ball like something that might explode any min-

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ute. He can't keep his nether extremities out of the way, and at least once in every game cracks himself on the knee with the ball. Each player has his own unique style of releasing the ball. One lad has more windup than a grandfather clock. While stepping forward to the kill he swings the ball in a high backward arc and then hurls it with all his strength in an effort to knock the end out of the building. Another chap never bends his elbow. He simply permits the ball to hang wistfully at the end of his arm and drops it off at the apex of his swing with a sigh of relief and a bump that sends the blood pressure of the alley proprietor charging to a new high. The ball rolls leisurely down the alley, barely reaches the pins, but nevertheless rolls about among them until it has pushed them all over gently one at a time and registered a strike. The last pin falls about five minutes after he has taken his seat.

And So to Bed

Top-notch players boast averages in the vicinity of two hundred, and some of the records hung up by the champs at national and international tournaments are big enough to be used as license numbers. The common or garden bowler, however, is happy enough to come up at the end of the season with an average of 175, which is quite enough to show that he is above average. As identifying raiment, men players merely throw off their coats and disclose, inscribed on the back of their shirts, such quaint legends as "Eat at Larry's Place," and "Glutz Super-Service Station. Open all night." Shoes have been pretty well standardized. The accepted type has a soft leather sole, so that the forward foot will slide comfortably at the instant of releasing the ball. When a human body, to which is appended a pinion weighted with a sixteen-pound projectile, is moving in a forward direction and that movement is suddenly arrested, said projectile has a pronounced tendency to separate the torso from all its attachments. Resistance to this tendency may produce anything from a perfectly executed strike to a ruptured esophagus. So that little slide is very important. In the last analysis, no game is easier to learn than bowling, and proficiency seems to grow with the years. The winner of the American All Events Championship in 1928 was a sixty-year-old player, and there are today hundreds of really high-class performers in the oil leagues between the ages of forty and sixty. It's everybody's game. If you haven't taken it up yet, you don't know WHAT you are missing. On the other hand, if you have taken it up, you don't know WHY you are missing, so maybe there are good arguments on both sides.

Chase Manhattan Bank 1960 Oil Report

Although earnings of a group of 32 of the largest U. S. oil companies in 1960 continued to recover from the low point reached in the recession year 1958, they still failed to measure up to the pre-recession level. This was revealed in an annual report on the petroleum industry just released by The Chase Manhattan Bank.

The 16th annual survey, prepared by Frederick G. Coqueron, analyst in the bank's petroleum department, showed that the 32-company group's net income totaled $2.9 billion, an increase of $213 million. Approximately 67 per cent was derived from domestic operations.

Cash dividends paid aggregated $1.5 billion, which was slightly higher than in 1959. However, the stockholders' share of the available earnings declined from 53 per cent in 1959 to about 50 per cent disbursed in 1960. The combined tax levies of United States and foreign governments in 1960 totaled $6.8 billion, 4½ times the dividend payments to shareholders.

The rise in the group's earnings is attributed to several factors, including a 7 per cent increase in the world-wide consumption of petroleum. Gains for crude oil production and refinery operations were similar. Despite the rise in consumption, crude oil availability continued excessive as a result of further development of resources in both established and new areas.

According to the report, capital expenditures of the group declined slightly to $4.2 billion in 1960. Of this outlay, 75 per cent was made in the United States. The year 1960 saw a further decline in the rate of return on overseas investments, a trend that has been in progress for several years.

Standard Western Extends Zone Retail Pricing Plan To Southern California

Effective July 7, 1961, Standard Oil Company of California, Western Operations, Inc., adjusted its basic prices downward on gasoline and gas oils in many of its marketing areas to reflect decreased costs due to improved methods of distribution. Reductions vary from point to point. Additional temporary reductions in prices to some classes of trade are being made as necessary to meet competitive conditions.

Separate adjustments are being made in prices charged service station dealers. After several months' experience in testing a Consolidated Trading Zone Plan in Seattle and Portland, the company reported that it is now satisfied that the plan has considerable merit and has resulted in substantial benefits to its retail dealers. The plan has had such favorable dealer acceptance that arrangements are being processed for its establishment throughout most of the remainder of the company's marketing areas.

This plan for pricing to dealers provides for the consolidation of former pricing localities for service station dealers into a smaller number of consolidated trading zones. In each zone a price to dealers will be established. In selecting these zones the company's object has been to make them wide enough to assure that all dealers subject to the same competitive conditions will pay for gasoline on the same basis, but not so wide as to cause the spread of price wars.

On July 12 this plan was extended to the Southern California area. In announcing its establishment locally, K. W. Kendrick, Standard's regional vice president and regional manager, Los Angeles, stated, "The new plan establishes a uniform price to Chevron dealers within broadly defined zones, and if successful will permit the company to discontinue so-called 'price war subsidies'."

Such subsidies have been used in various forms by numerous petroleum suppliers as a means of meeting local competitive conditions.

"Market conditions in this area have been unstable on numerous occasions in the past, and we hope this new plan will contribute to their improvement," Kendrick said.

Schlumberger Engineering Makes a Complete Logging Program Available in Wells Up to 400°F

Efforts to find oil at ever increasing depths create problems for service companies who log and perforate these deep wells. Schlumberger Well Surveying Corporation has expended a great amount of research and engineering effort toward making these vital operations possible under new extremes of temperature and pressure.

A few years ago, only the nonelectronic Electrical Log and Microlog could be made in high-temperature holes (above 250°F); and they were sometimes of limited value due to adverse borehole conditions.

Today, services now available include the Schlumberger Induction Electrical Log, Gamma Ray Neutron Log, Sonic Log, and Continuous Dipmeter Log. Schlumberger's persistence in high-temperature design has made possible complete logging programs under diverse borehole and formation conditions in wells with temperatures as high as 400°F.

Present maximum well temperatures of about 400°F are beyond the range at which many ordinary instrument components can operate. The problem is accentuated by increasingly complex electronic downhole logging devices.

To counter such high temperature restrictions, Schlumberger logging instruments are now using new heat-resistant elements. Engineers keep in constant touch with developments in the missiles field, in which similar problems of heat and size limitations prevail.

Attention to high-temperature operation continues throughout construction. Circuits must be specially designed to accommodate the high-temperature components and provide minimum power dissipation, which produces additional heat within the instruments.

Critical electronic components are screened by subjecting them to operating checks while they are immersed in oil at 400°F. Finished assemblies are subjected to heat tests in which temperatures are raised in stages while operating characteristics are checked and recorded.

Even the cable, which supplies power to the instrument and through which information-giving signals must be sent to the surface recorder, is not exempt from temperature considerations. Insulating properties of materials decrease as temperature increases. Downhole devices must therefore be designed to reduce this effect to insignificance on the finished log. As a result of such studies, cables that withstand temperatures well above 400° have been produced.

In completion services, the effect of high temperature on explosives introduces other difficulties. Exhaustive studies have been made in Schlumberger laboratories on relations between temperature, explosive power and operating safety of charges used in bullet and shaped-charge perforators. The result is an explosive package that can be safely used to perforate wells at temperatures up to 430°F.

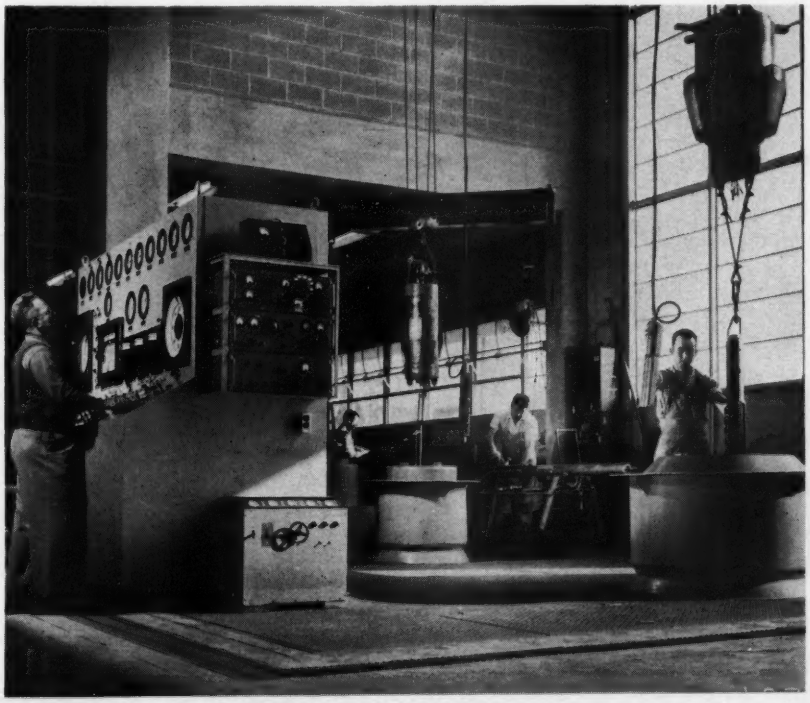
High hydrostatic pressures are also problems in deep wells. Much engineering work has gone into developing sondes and housings that withstand bottomhole pressures greater than 20,000 psi.

The pressure problem increases when the drilling mud is gas cut. Aided by the high temperature, which increases rubber's permeability to gas, high pressures force gas into the conductors' insulation and the rubber coverings of other metal parts. When the device reaches the surface, this occluded gas expands, sometimes bursting the rubber. therefore, insulating materials must be chosen to be as impervious to gas as possible.

If reliable downhole tools for such stringent conditions are to be produced, they must be tested under simulated conditions at least equal to the pressure and temperature extremes to be encountered in use.

For this purpose Schlumberger operates at its Houston plant four high-pressure, high-temperature vessels. The first such vessel, with a rating of 10,000 psi, was set up in 1942. The latest unit to be installed operates at a maximum pressure of 30,000 psi and 450°F. Pressure-temperature testing equipment of the size and scope of this Schlumberger device is found nowhere else in American history.

By 1975, if historical trends continue, well depths will reach 35,000 feet. Mud pressures will run to 30,000 psi or more and bottomhole temperatures may be as high as 600°F.



SCHLUMBERGER TESTING LABORATORY IN HOUSTON—Pressure-temperature testing equipment in Schlumberger's Houston laboratory simulates well conditions equipment will encounter in use. Latest testing unit installed operates at maximum pressure of 30,000 psi and 450°F.

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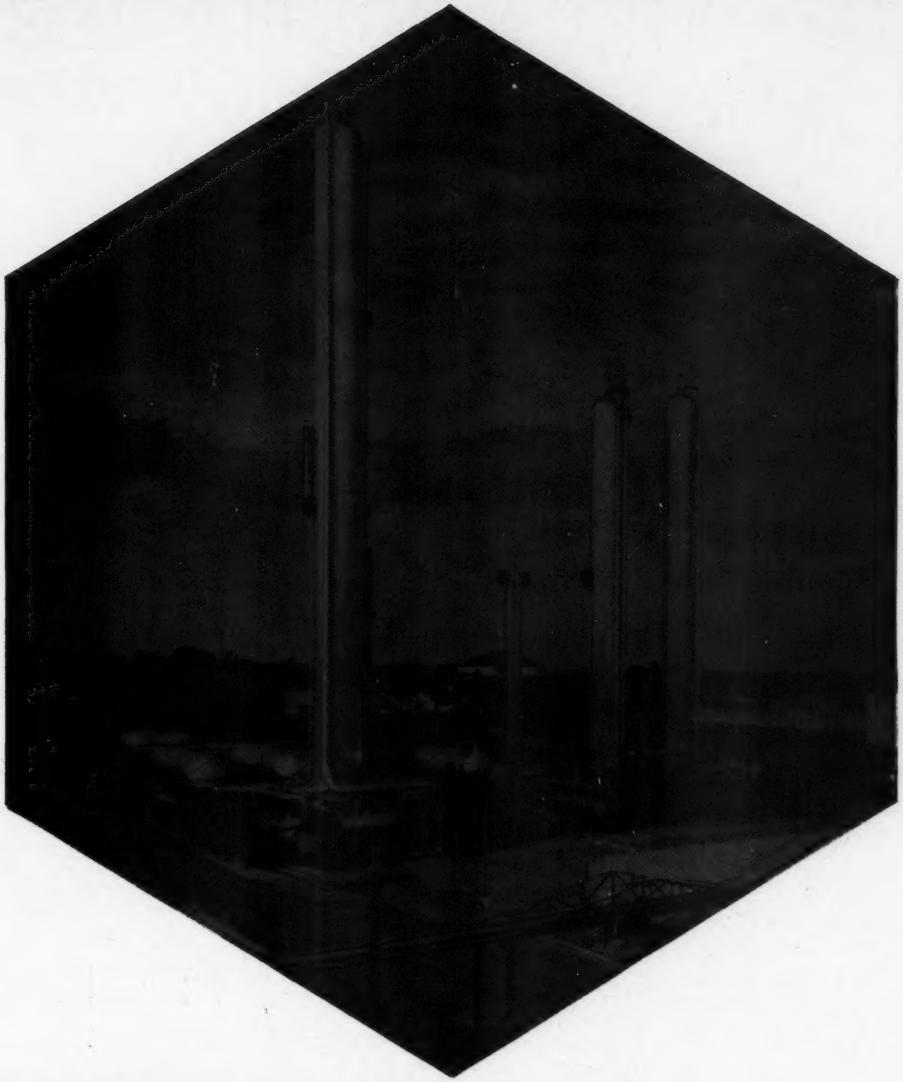

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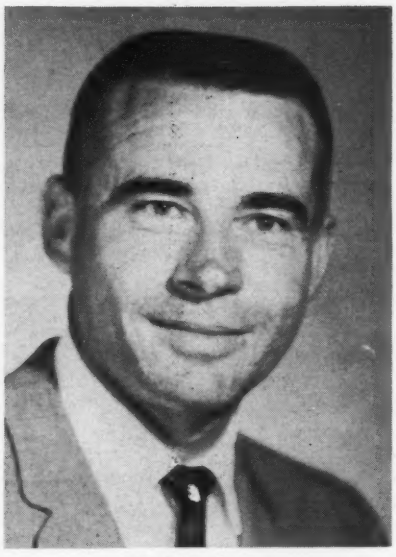


H. Allen Perry

Perry to Represent Oilfield Division Of Hagan Chemicals & Controls

H. Allen Perry has joined the sales staff of the Los Angeles District Office of Hagan Chemicals & Controls, Inc., 3040 Tweedy, South Gate.

Perry will represent Hagan's Oilfield Division, supplier of chemicals and equipment for the oil fields. Prior to joining Hagan, Mr. Perry was a store manager for the Republic Supply Co. of California.

He is a member of the Los Angeles Basin chapter of the American Petroleum Institute and of the United States Power Squadrons.

Shell Oil Names D. W. Gresser Area Geologist

D. W. Gresser, 8858 East Camino Real, San Gabriel, has been named area geologist in Shell Oil Company's Pacific Coast Area.

Gresser recently returned from a special assignment in The Hague, Netherlands. Prior to that he had been manager of Shell's Farmington exploration division.

He joined Shell upon graduation from UCLA in 1947 as a computer in Los Angeles. Various assignments took him to Sacramento, Ventura and New York.

Houston Chemical Corp. Appoints John M. Robinson

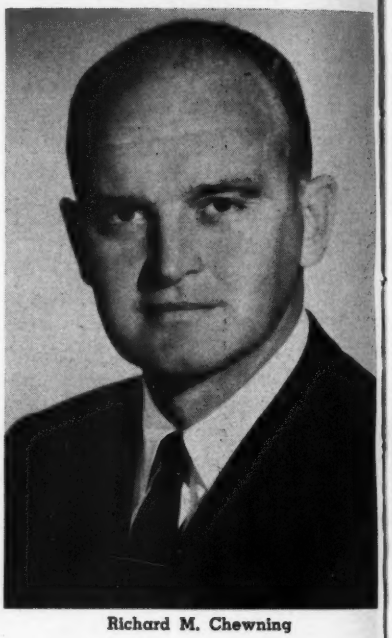
John M. Robinson, former vice president and director of Macco Corporation in charge of its Oil Field Divisions, has just been appointed western sales manager for Houston Chemical Co., 200 Madison Avenue, New York.

Robinson pointed out that completion of the new multimillion-dollar gasoline additive plant in Beaumont, Texas, will make Houston Chemical the country's third largest producer of tetraethyl and tetramethyl lead.

The Beaumont petrochemical complex also includes an 80,000,000-pound-per-year ethylene oxide plant, the largest single unit of its kind ever constructed.

Robinson has established western headquarters at 612 South Flower Street, Los Angeles.

John M. Robinson



Richard M. Chewning

Richard M. Chewning Advanced To Executive Vice Pres. of Republic Supply

The board of directors of The Republic Supply Company of California has announced the election of **Richard M. Chewning** to the office of executive vice president. Mr. Chewning has been a vice president and director of Republic since 1954.

His career with Republic Supply began in 1941. A graduate of the Fullerton School District, Chewning in recent years has attended management business courses both at Harvard and Stanford Universities. He is a former president of the Los Angeles Industrial Distributors Association; currently he is a director of the Petroleum Equipment Suppliers Association and the Southern California Industrial Distributors Association.

Republic Supply is one of the West's largest distributors of specialty metals, oil industry supplies, water works supplies, and industrial tools. The company, which last year

marked its 50th anniversary in business, operates 13 warehouses and branches in California, Arizona and Washington.

R. Murph Jones Joins Petrolite Corp.

R. Murph Jones, former assistant manager of the Nuclear Branch of Lockheed Aircraft Corporation, Georgia Division, has joined Petrolite Corporation, St. Louis, Missouri, as marketing director.

Creation of the new post at Petrolite is a result of recent expansion and diversification of the company's activities in the petroleum, chemical and nuclear fields both in the United States and free world markets, **Dr. C. M. Blair,** president of Petrolite, said in announcing Jones' appointment.

Prior to his joining Petrolite, Jones was associated with the Nuclear Branch of Lockheed's Georgia Division as assistant manager though he was assigned to Lockheed's Corporate Development Planning Staff for the greater part of 1960. From 1944 to 1956 he was with the National Laboratories of the Manhattan Engineer District and the Atomic Energy Commission.

A graduate of Rice University, Jones has completed the course at Oak Ridge National Laboratory, School of Reactor Technology, and is co-holder of the basic Engineering Test Reactor patent which is assigned to the A.E.C. He is a member of the American Nuclear Society and the Atomic Industrial Forum.

Shell Oil Co. Promotes Bert P. Eastin and Others

Bert P. Eastin, former production manager for Shell Oil Company's Pacific Coast Area, has been named vice president of production for Shell, with headquarters in New York.

He succeeds **J. E. Clark,** a native Californian who recently was appointed executive vice president in charge of exploration and production in Shell's New York office.

Eastin, who received bachelor and master of science degrees from the University of California, joined Shell in 1938 as an exploitation engineer at Bakersfield.

He became chief exploitation engineer of Shell's Pacific Coast Area in 1949, production manager of the Coastal Division in 1951 and production manager of the Pacific Coast Area in 1954.

Since 1958 Eastin has been director of production research in the exploration and production research division of Shell Development Company.

Eastin has been succeeded by **J. D. Goodrich,** former production manager in the Denver area. **P. A. Dennie,** formerly assistant to the vice president of the Pacific Coast Area, has succeeded Mr. Goodrich.

Shell Oil Co. And Benzene

Shell Oil Company is now the world's largest producer of benzene, a material used in the manufacture of a variety of products from rubber to nylon.

M. P. L. Love, Shell's manufacturing vice president, said the company's benzene production for 1961 will exceed 80,000,000 gallons, as compared with an expected industry total of 450,000,000 gallons.

Shell made the first benzene ever produced in commercial quantities from petroleum in early 1947 at its Wilmington Refinery.

Wilmington is one of three refineries where Shell this year enlarged facilities for benzene production. The others are Houston, Tex., and Wood River, Ill.

About 38000 gallons of benzene is now being consumed by Shell Chemical Company in its manufacture of styrene, used in making synthetic rubber and polystyrene plastics, and in the manufacture of phenol, used in making resins, adhesives and oil additives. Benzene also is used in making detergents.

Love said sizable quantities of Shell's benzene production are being made available for market.

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Henry W. Grote

H. W. Grote Named To New Position at UOP

Henry W. Grote has been named general manager with responsibility for physics, automotive and service laboratories, and semi-works and research service groups of Universal Oil Products Co., **M. P. Venema,** board chairman, announced. This position was formerly held by vice president **J. C. Raaen,** who requested relief from his present responsibilities.

Grote, formerly assistant to the staff vice president in charge of acquisitions and liaison with subsidiaries and security analysts, joined UOP in 1938 as a chemical engineer following his graduation from the University of Michigan. In 1945 he was made manager of the company's process development department at McGook, Ill. Subsequently he was named assistant manager of Universal's research laboratories at Des Plaines, and in 1956 was appointed manager of the petrochemical process sales department. He was named assistant to the staff vice president last year.

Colonel Raaen, who has been with Universal for 14 years, served in the United States Army from 1919 to 1947, when he joined the company as general manager of the research and development laboratories. He was made a vice president in 1952. Colonel Raaen continues as a director of Procon, Incorporated, UOP construction subsidiary.

L.A. BASIN AIME LEADERS, 1961 OFFICERS AND DIRECTORS—Pictured above, the 1961 officers and directors of the Los Angeles Basin Section Society of Petroleum Engineers of AIME. Left to right: John Gates, Shell Oil Co., chairman; Ed Mayer, Humble Oil & Refining, Monterey Div. secretary; R. F. Krueger, Union Oil Co., director; D. S. Nutter, Shell Oil Co., director; T. O. Roe, Halliburton Co., director; N. N. Jones, Humble Oil & Refining, director; H. E. Nissen, Signal Oil & Gas Co., director. Not shown are directors Richard G. Grippen, Texaco Inc.; J. B. Hundley, Jr., Richfield Oil Corp.; Ray Elner, Kobe, Inc.; and J. T. Carriel, Signal Oil & Gas Co., treasurer.

Carl Buchholz Guest Speaker At Long Beach D&D Club

Carl Buchholz, location manager with Schlumberger Oil Well Surveying Company, was guest speaker at the Desk and Derrick Club meeting held July 19th Lakewood Country Club.

Buchholz spoke on "Electrical Well Logging," a vital subject in the oil industry. A movie film accompanied his talk.

Alternate delegates to the Desk and Derrick convention at Houston, Texas, were elected and a five-member nominating committee for 1962 was chosen, according to club president Margaret Ericson.

Plans for the forthcoming field trip to Firestone Tire and Rubber Company, Los Angeles, were discussed.

Darwin H. Clark Co. Moves to New Offices

Tripling the size of its quarters, Darwin H. Clark Co. Los Angeles Advertising Agency, moved on Monday, July 24, to its own streamlined, completely air conditioned 4500-square-foot building at 1145 W. 6th St., Los Angeles.

This agency handles over 25 financial, industrial and consumer accounts, including oil tool, steel, pump, boiler, pipe, aircraft parts, plastics, traffic signal, plumbing, engineering, electronic, radio station, investment and brokerage, savings and loan, management consultant, and other firms. As exclusive Los Angeles member of Transamerica Advertising Agency Network since 1938, the Clark agency has affiliated offices in 20 key marketing centers of the United States.

L.A. Desk and Derrick Club Enjoys "Highway Holiday"

John Mellen, division film representative of Richfield Oil Corporation and former Southern California FM radio announcer, showed a colored film entitled "Highway Holiday" at the July 18 meeting of the Desk & Derrick Club of Los Angeles in the Music Room of the Biltmore Hotel at 6:30 p.m.

The film, produced by Du Pont Corporation, contained incomparable color photography of America's scenic and historic landmarks, and gave members a pleasant evening of motoring across this great land of ours with the realization of the countless rewards that await beyond the horizon.

Mellen told of the work being done by the petroleum industry to encourage the desire for travel in the minds of every American. Assisting him was William A. Miller, founder and present director of Richfield's Travel Service.

THE 1961-62 BOARD OF DIRECTORS FOR THE DESK & DERRICK CLUB OF LOS ANGELES—Installation meeting was held at the Biltmore Hotel on June 20, 1961. Front row, from left: Lee Twible, recording secretary, Terminal Drilling; Paula Cohen, corresponding secretary, Blair & Krueger; Mary Gist, president, Ehrhart & Associates; Winifred Marsh, first vice president, Standard Oil Company; Ann Delporte, treasurer, Pathfinder Petroleum. Back row: Marion Lee, director, Mobil Oil; Frances M. King, immediate past president, Power Rig & Equipment; Murial Oakland, director, Continental-Emsco Company; Annis Tulley, director, Union Oil Company.

New Babbitt Sprocket Rims Molded in Ductile Iron For Changing Industry Needs

The classic adjustable sprocket rim originated by Babbitt Steam Specialty Co. is now available in a complete range of sizes cast from ductile iron.

While the original sprocket rim of cast iron continues as a standard stock item, according to Babbitt, the new ductile iron type meets specific needs where industrial conditions involve especially hard service or exposure to corrosive elements. Decision to begin casting the company's long-established product in ductile iron was dictated by the rapid development of totally new industrial situations, many of them involving unprecedented wear and tear on equipment.

Ductile iron, Babbitt states, has many of the properties of high-priced cast steels. Wear resistance is equivalent to that of the best grades of gray iron, with the result that a Babbitt Sprocket Rim of the new metal will never need to be replaced. The new rims are practically unbreakable under normal use, due to the toughness of ductile iron in resisting sudden shock. Resistance to corrosion by acids, alkalies, salts and sea water is described as superior.

Like the company's standard product, the Babbitt Adjustable Sprocket Rim of ductile iron enables the operation of valves placed in high or otherwise out-of-reach locations. Easily and firmly attached to the wheel of any valve, the Babbitt rim makes instant valve opening or closing a simple matter of a slight pull on the sprocket chain.

Special advantages cited for the Babbitt Sprocket Rim are that it is easy to install and requires no maintenance; reduces accidents to a minimum by eliminating the need for acrobatics on the part of personnel in reaching valves to operate them; saves money by preventing waste due to employees' "forgetting" to operate hard-to-reach valves; and cuts piping costs by simplifying piping layout.

The new Babbitt Adjustable Sprocket Rim of ductile iron is presently available in 10 sizes, to fit valve wheels ranging in diameter from 2 to 30 inches. Full details and list of net prices, which are slightly higher than for Babbitt rims of standard formulation, are available from Babbitt Steam Specialty Co., Babbitt Square, New Bedford, Mass.

UOP Appropriates Nearly $6½ Million for New Plants and Expansion

Universal Oil Products and subsidiary companies have appropriated nearly $6½ million to be used largely for plants to manufacture new products, according to M. P. Venema, UOP board chairman.

Mr. Venema said that approximately $4,200,000 of the $6½ million will be invested in new plants to be built on the company's Shreveport, La., property. Of the remainder, approximately $1,800,000 will go into expansion of manufacturing facilities, new engine laboratory building and equipment, and new plants to be located on the company's properties at Des Plaines and McCook, Ill.

In addition, the UOP subsidiary companies at East Rutherford, N.J., and Los Angeles will spend about $500,000 on new manufacturing facilities and laboratory testing equipment.

These projects, when completed, will permit the company to realize more fully the benefits of its research and development efforts in specific areas, Venema said. Such steps are in line with UOP's continuing policy of expansion and diversification to insure added stability and growth.

New Foaming Agent Marketed by Visco Products

A new, liquid, water-soluble foaming agent with corrosion-inhibiting properties for use in gas wells water injection wells and salt water disposal systems, has been marketed by Visco Products Company, Houston.

The compound, Visco A-20-F, according to Visco, combines low cost and ease of handling with a distinct advantage in that it protects surface equipment against corrosion damage.

Capable of substantially lowering the surface tension of water and acids, and of producing large volumes of foam under varied conditions, the new material is said to effectively loosen and disperse paraffinic-asphaltic compounds, clays, silts, and other undesirable deposits.

Formulated to give approximately equal foaming ability to solutions of high brine content as well as fresh water, Visco A-20-F forms a foam column that can be lifted from the well by gas pressure which normally may be too low to lift a column of water. Application may be made either by pump or batch feed.

New Varco Rotary Slips

Abegg & Reinhold Company has developed new lines of rotary slips with increased strength and with better gripping without scarring of pipe.

Varco rotary slips are available in three types to handle all hook loads.

Further information may be obtained by writing the manufacturer, Abegg & Reinhold Company.

PESA Members Active In "Defense Mobilization"

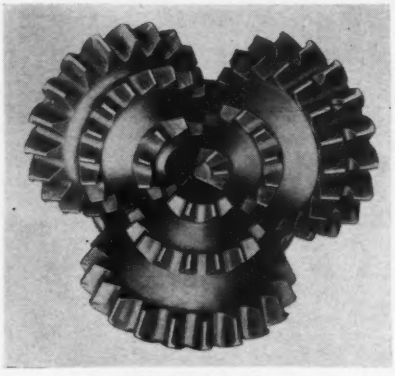
Ten men from Petroleum Equipment Suppliers Association member companies were on hand in Washington, D.C., recently to participate in a "defense mobilization" exercise held by the Department of Commerce.

PESA men at the Washington meeting included F. M. Mayer, Continental-Emsco Co.; G. W. Carrington, Exner-Dodge; Gordon Clarke, Hughes Tool Co.; Earl Cobden, Hughes Tool Co.; Howard Drake, Oil Well Supply Div., U. S. Steel Corp.; Walter Graham, Harnischfeger Corp.; J. R. McIlroy, Pittsburgh Pipe and Coupling Co.; H. R. Safford, Jr., PESA; C. E. Trapp, The Halliburton Co.; and J. T. Workman, Byron Jackson Div. of Borg-Warner Corp.

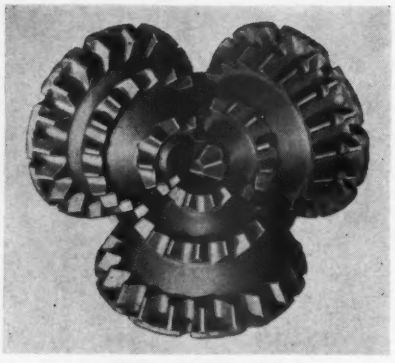
Meeting for the two-day 1961 National Defense Executive Reserve Annual Conference, PESA men and other members of the Reserve worked in "shirtsleeve sessions" to formulate effective mobilization plans for industry paralyzed by attack.

Oil Facts

There is one service station for every 327 motor vehicles registered in the United States, according to "Oil Facts." Ten years ago there was one station for every 226 vehicles.



Globe H3 Rock Bit



Globe HW3 Rock Bit

Globe Oil Tools Announces A New Line of "H" Type Rock Bits

Globe Oil Tools Company has introduced two new rock bits, the H3 and HW3.

The HW3 bits have heavily hard-faced gauge webs for maximum resistance to gauge wear. They will hold gauge better than the H3 in chert, chat, quartzite, pyrite, granite, dolomitic and quartzitic sand rock, and other hard abrasive formations where gauge is a problem. Globe HW3 Rock Bits are available in both regular and jet types.

The Globe H3 Bits will drill faster than the HW3 in formations where gauge is not a problem.

They have short closely spaced teeth and large bearings for carrying the high loads required for crushing-shipping action to penetrate hard sandy limestone, cherty limestone, dolomite, quartzite, chert, chat and granite formations.

Globe H3 Rock Bits are available in both regular and jet types.

B&W right and left hand Centralizers with Kon-Kave helical bows.

New "Helical" Centralizers With Kon-Kave Bows

B & W Incorporated, manufacturers of primary cementing equipment for well completion, announces the development of six new Centralizer models with Kon-Kave Helical bows. The bows are made of high alloy steel and drop forged in a true helix shape with a concave cross-section.

This concave cross-section provides maximum bow strength for positive centering, and the helical design of the bows creates maximum agitation of the drilling fluid and cement slurry. These Centralizers are available in pairs of right and left hand helical bows. By alternating these right and left hand Centralizers, the drilling fluid or slurry is given added turbulence.

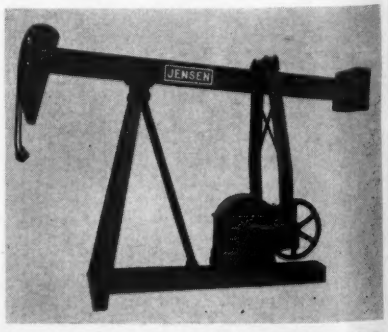
The exclusive B & W Kon-Kave cross-section gives the bows a rounded surface rather than a leading edge. This configuration eliminates gouging the wall of the hole and avoids torquing the casing while running in. These Helical Centralizers will easily by-pass key seats, avoiding a major cause of stuck pipe.

Available in six models with solid or hinged collars and integral stop devices. For further information, write B & W Incorporated, 19705 South Normandie Avenue, Torrance, California.

Jensen Bros. Mfg. Co., Inc., Reveals Its New Model Series "E" Pump Jacks

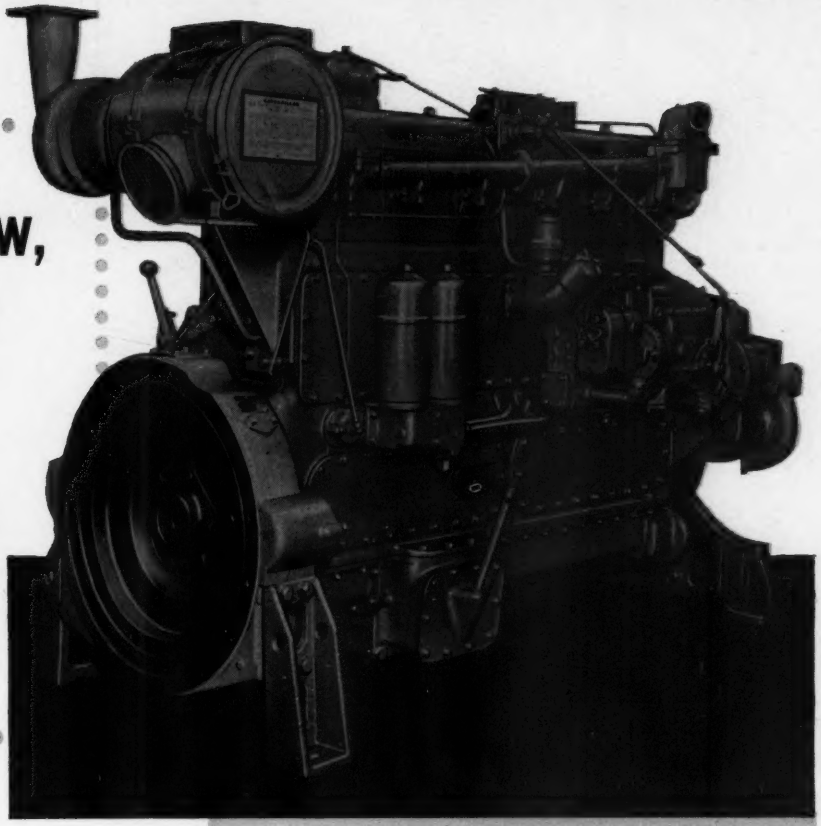
The new Series "E" Pump Jacks are of the same high-quality material and construction as all other Jensen pump jacks. The gears in all gear reductions are made of nodular iron, the iron that will withstand rough use. The cranks are of the split hub type, and are full floor clearance. The stroke adjustment is obtained by varying the position of the upper pitman bearing on the walking beam, and counterbalancing is accomplished by the use of counterweights installed on the walking beam.

Series "E" Pump Jacks are available in unit sizes No. 1, 2, 4, 5, 6, 7 and 8.



Jensen Bros. new model Series "E" Pump Jack.

Get this new, Heavy-Duty CAT® Gas Engine FREE!



You don't have to be a lucky contest winner to own this new CAT without COST! How? It's simple... Besides lower original cost per usable h.p. records show that modern CAT gas engines operate up to 20% more economically than others... in most cases, *savings in fuel alone repay the complete cost of your CAT engine before its first overhaul!*

WHY CATS USE LESS FUEL

Most engines must operate at derated outputs to obtain acceptable life. By operating at lower ratings, fuel consumption per h.p. delivered goes up! But new CAT gas engines are built with an extra wide margin of safety. Design is based on the modern, rugged CATERPILLAR diesel. This means these engines tolerate high compression ratios and easily operate continuously at their most efficient loadings.

Result? Just check the fuel consumption rates at right... Note CAT savings. Let these fuel savings pay for your CAT engine and be money ahead in the years to come.

Fuel Consumption in BTU/HP—HR

Manufacturers' Recommended Continuous Loading	Engine A	Engine B	CAT G-342	Savings/year with CAT using 30¢ MCF fuel	Savings/year with CAT using 60¢ MCF fuel
150 HP	9,100	10,300	8,100	$395.00	$790.00
200 HP	9,900	10,500	8,500	$735.00	$1470.00
235 HP	10,500	10,400	8,500	$1180.00	$2360.00
280 HP	10,300	10,300	8,600	$1260.00	$2520.00

All data compiled from manufacturers' published literature.
Where only full load fuel consumption indicated, 5% added to get continuous rates.
All figures listed in gross heat value.
All engines with radiators and fan.

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ASK for full details on OUTRIGHT PURCHASE or our *capital-saving* LEASE PLAN. Engine sizes from 150 to 720 h.p. continuous.

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Field Development

LOS ANGELES BASIN

McCulloch Purchases Cascade Production

McCulloch Oil Corporation of Calif. has purchased the Cascade Oil Field properties from Macson Oil Company, consisting of six producing wells on 1200 acres, which will add about $70,000 to McCulloch's annual oil sales. Producing interval is 2445-3128 feet. Additional drilling is planned for the immediate future. Reserves of the present producing wells are estimated to be 200,000 barrels net of recoverable oil.

Texaco's Wildcat Abandoned

Texaco Inc. drilled to a total depth of 12,561 feet on Clanton No. 1 and after logging and taking sidewall samples plugged and abandoned the well. The test was located on the northwest quarter of Section 28-3s-11w, three miles south of the Santa Fe Springs field.

Brea-Olinda Test

Tidewater Oil Company is grading rig site for 100 acres Fee No. 90 on the southwest quarter of Section 8-3s-9w. The well will be a Lower Chapman Zone test at about 5200 feet.

Three Probe Holes

Shell Oil Company has staked locations for three Probe Holes in the Brea-Olinda - Yorba Linda area. "Olinda Fee Four Probe Hole" No. 77-15 will be drilled on Section 15-3s-9w. No. 34-16 will be drilled on Section 16-3s-9w and No. 82-17 on Section 17-3s-9w.

Corona Abandonment

Edgington Oil Refineries, Inc., drilled to a total depth of 4370 feet on Pipkin No. 1 and abandoned the well, which was located on the southwest quarter of Section 34-3s-7w in Riverside County.

Whittier Field Well

Standard Oil Company will drill Murphy-Whittier No. 110, the most easterly location, near the west quarter corner of Section 25-2s-11w.

Wilmington

W. S. Payne, Jr., Operator for American States Oil Company, is preparing to drill ahead after cementing 7" casing at 3625 feet on Armstrong No. 1. The well is located at the intersection of Lomita Boulevard and Eubank Avenue on the northwest quarter of Section 29-4s-13w.

SAN JOAQUIN VALLEY

Socony Mobil Deep Test

Socony Mobil Oil Company, Inc., has staked location for Mobil-Signal-KCL No. 35-12 immediately south and west from the center of Section 12-31s-25e. Although the location falls inside the boundaries of the South Coles Levee Unit operated by The Ohio Oil Company, Socony Mobil has operating rights to the deeper sands and the test will be drilled to approximately 12,800 feet.

Gosford Area Development

Richard S. Rheem, Operator, drilled to 5890 feet on KCL No. 45-26 and abandoned the well after the surface casing collapsed. The derrick was moved 50 feet north and KCL No. 45X-26 is drilling below 5000 feet, and will be a 14,500-foot test. Both wells are located on the southwest quarter of Section 26-30s-26e.

Universal Consolidated Oil Company completed KCY No. 76-26 flowing 313 b/d of 29 gravity oil with a cut of 0.8 per cent. Flow is from the Lower Stevens perforations 10,120-10,176 feet through a 16/64" bean. Through an 18/64" bean flow was 468 b/d. Located on the southeast quarter of Section 26-30s-26e, the well was drilled to a total depth of 10,260 feet and has 7" casing cemented at 10,259 feet.

Arrowhead Wildcat

Arrowhead Exploration Company has staked location for Arrowhead-Shell-Mouren No. 1 on the northeast quarter of Section 16-23s-17e in Kings County six miles southwesterly of Kettleman Hills production. Two tests were drilled and abandoned in the immediate vicinity. Verde Enterprises drilled Mouren No. 81X-16 to a total depth of 10,144 feet and abandoned the well after salt water was recovered on tests of the intervals 9417-9444 and 9682-9733 feet. Approximately 1000 feet north and west of Arrowhead's location, Sunray Mid-Continent drilled Lynch-Mouren to a total depth of 11,962 feet and abandoned the well after running liner and testing.

Shell Oil Deep Test

Shell Oil Company has staked location for a Merced County deep test on the southwest quarter of Section 6-11s-13e. Shell's test, Antoine No. 3-6, will be drilled to approximately 12,200 feet and is two miles northeast from the town of Dos Palos and seven miles southwest of the Chowchilla Gas Field.

Chowchilla Gas Test

Chowchilla-Holmes Associates (W. W. Holmes) is preparing rig site for Redman-Stone No. 3-20 to be drilled on the northwest quarter of Section 20-10s-14e in Madera County. The location falls ¼ mile southeast from gas production.

Richfield Oil Wildcat

Richfield Oil Corp. is moving in rotary on KCL-L No. 72-34 located on the northeast quarter of Section 34-11n-20w. Drill site is one mile west of the northerly portion of the Windgap area of the Wheeler Ridge Field.

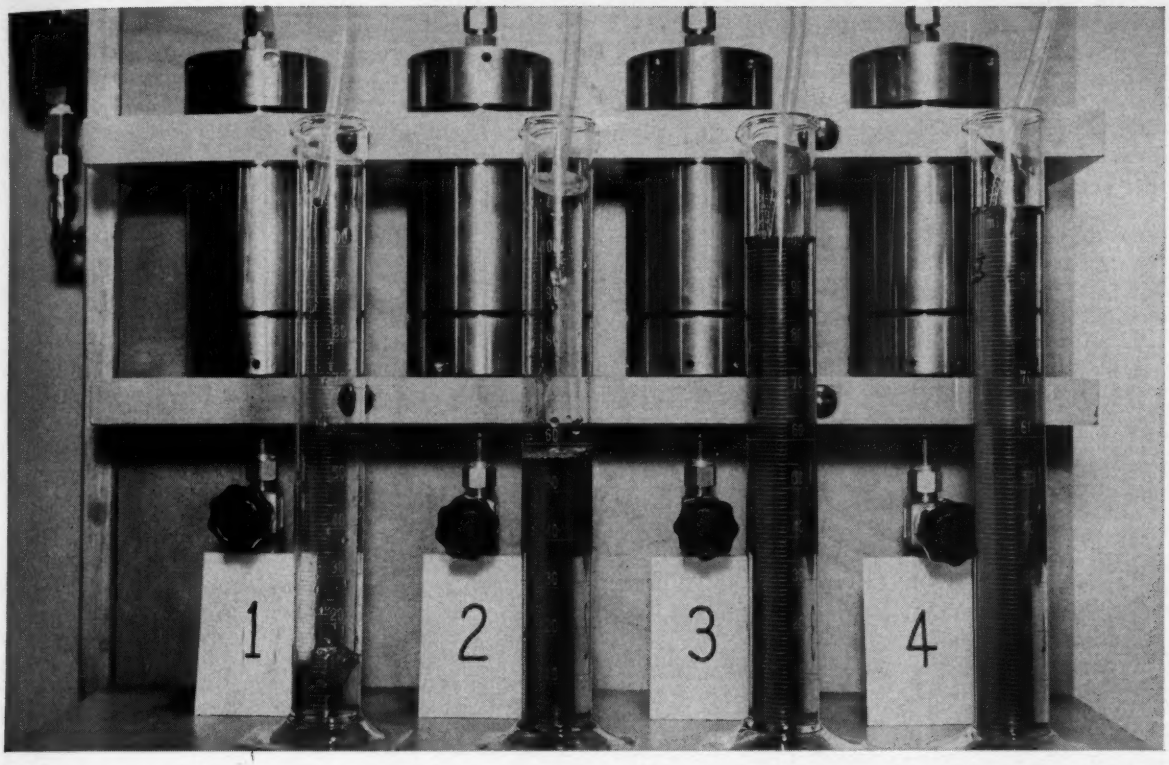
Signal Oil Wildcat

Signal Oil and Gas Company is preparing to drill Signal-Union-Hoskins et al No. 64X located on the northeast quarter of Section 20-30s-28e in the Kernsumner area.

Socony Mobil Test Abandoned

Socony Mobil Oil Company, Inc., drilled to a total depth of 10,305 feet on Socony Mobil-KCL No. 66-17 and after logging and sidewall sampling abandoned the well. The test was located on the southeast quarter

fracture conductivity tests help you make more profit



This Dowell-designed Fracture Conductivity Tester permits direct comparison of four different propping agents in a given formation. The rate of fluid flow indicates fracture conductivity. Note that the flow has only partly filled graduate 1 while the flow has passed the 100 ml mark in graduates 3 and 4.

This is a Fracture Conductivity Tester – one of several types being used by Dowell. Over 1000 fracture conductivity tests have been made by Dowell to help design more effective fracturing treatments in a wide variety of formations.

If you have noticed that recent fracturing treatments have given greater production increases per dollar than usual, you are probably reaping rewards from these 1000 tests.

In using the tester shown, duplicate plugs are cut from a core taken from the well to be treated. These test plugs are split to simulate fractures, assembled in flexible sleeves and placed inside the cylinders shown.

Various propping agents are introduced into the "fractures" in the desired concentrations – either by hand or carried in stimulation fluid.

Overburden pressure is simulated by hydraulic pressure applied to the outside of the test plugs.

Treating fluids – with or without propping agents – are injected and left in the samples under pressure for 12 hours or more.

Conductivity of the "fracture" in each cylinder is then measured using either reservoir fluid or a special test fluid such as kerosene.

The results of these tests, plus other pertinent well data, are then interpreted through the Frac Guide* – Dowell's engineered plan for designing optimum fracturing treatments.

Ask your Dowell representative for a free copy of the new "Technical Report on Fracture Conductivity." This report deals with the important factors affecting the flow of fluids through fractures, such as size, type and amount of propping agent, formation hardness and overburden pressure.

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of Section 17-30s-27e, 1½ miles east of the East Gosford production.

Hollister Outpost

Petrolex, Inc., has staked location for San Miguel No. 1, a southeasterly outpost and extension test located on the southwest quarter of Section 28-12s-5e in San Benito County.

Northwest Semitropic

Texaco Inc. is preparing to drill Hansen Gas Unit No. 1 located on the northeast quarter of Section 27-26s-22e, an extension test ¾ mile southeast of their BLH Gas Unit One No. 1 new field discovery well completed last March.

NORTHERN CALIFORNIA

Cameron Gas Completion

Cameron Oil Company completed Grimes Operating Unit 12 No. 2 flowing 5700 mcf of gas per day from the perforated interval 6712-6724 feet. The well was shut in with a pressure of 3050 psi. An outpost test to the Grimes Gas Field located on the northwest quarter of Section 12-14n-1w in Colusa County, the well was drilled to a total depth of 9000 feet and has a 5½" casing cemented at 8900 feet.

Ambassador Oil Test

Ambassador Oil Corp. is grading rig site for George R. Zumwalt No. 1 on the southeast quarter of Section 35-15n-2w in Colusa County. Location of the wildcat falls seven miles southeast of the town of Williams.

Butte Creek Wildcat Quits

Occidental Petroleum Corp. drilled to a total depth of 7639 feet on Sacramento Outing Club No. 1 and after recovering a small flow of gas from the interval 3897-3949 feet, abandoned the well. After evaluating the showings logged, a second test may be drilled. Location of the test was on the northeast quarter of Section 12-16n-1w in Sutter County.

Kirkwood Gas Test

W. S. Payne, Jr., Operator, is preparing to drill Roberts No. 1 located on the southwest quarter of Section 9-23n-3w in Tehama County. The test falls south of the Kirkwood Gas Field and will be drilled to about 4200 feet.

Doheny Outpost

E. L. Doheny, Operator, has staked a location for Section 46 Unit No. 3 on Section 46 of the Glenn Ranch Survey in the northeast quarter of Section 23-20n-2w in Glenn County. The location is about 3500 feet easterly from production at the Willows-Beehive Bend Gas Field.

New Gas Discovery

Sacramento Oil and Gas Company completed Osterli No. 1 as a new field discovery flowing 5200 mcf of gas per day through a ⅜" bean from the perforated interval 5705-5720 feet with a flow pressure of 2500 psi. The well is producing from the G Zone (120 feet of net sand in five zones), the first in the Sacramento Valley. Located on the northwest quarter of Section 5-11n-4e in Sutter County, twenty miles north of the City of Sacramento, the discovery was drilled to a total depth of 5762 feet and cemented 4½" casing at 5753 feet. This was the first test of a 24,000-acre block held under lease by the company, headed by A. A. Hopkins, Jr., as president, and Paul C. Nelson as vice president.

Solano County Wildcat

Occidental Petroleum Corp. is preparing rig site for Capital Company No. 1 located on the northeast quarter of Section 32-7n-1w. The test falls eight miles southwest of the Winters Gas Field.

Dunnigan Hills Extension

Standard Oil Company's A. M. Richie No. 1 is standing shut-in after flowing 1655 mcf of gas through a ¼" bean with pressures of 1095/-1175 psi. Flow was from the perforated interval 3251-3254 feet. Shut-in pressures are 1244/1246 psi. Located on the southwest quarter of Section 36-11n-1w in Yolo County, the test was drilled to a total depth of 9500 feet and has 7" casing cemented at 5604 feet.

Sutter County Wildcat

Texkan Oil Company of Dallas, Texas, has announced location for Atlantic-Pogue No. 1, a wildcat gas test to be drilled on the southwest quarter of Section 13-15n-2e. The location is four miles east of the Sutter Gas Field.

Yuba City Gas Test

Sacramento Oil & Gas Company is preparing rig site for Orlando No. 1, a wildcat gas test to be drilled on the southwest quarter of Section 17-14n-3e in Sutter County. Located on a 3000-acre lease block five miles southwest of the town of Yuba City, the well is expected to go to approximately 5000 feet.

Natomas Offset

Buttes Gas & Oil Company has spudded in on Natomas No. 3 located on the northeast quarter of Section 6-10n-4e in Sutter County. The well is a westerly offset to the company's Natomas No. 2, new field discovery well completed in December, 1960, from the Markley formation interval 3125-3240 feet.

Elkhorn Wildcat

Humble Oil & Refining Company has staked location for Henry M. Moss et al No. 1, a wildcat test on the northeast quarter of Section 32-10n-4e in Sutter County and approximately five miles south of the Buttes Gas & Oil Company's Natomas Gas Field discovery well.

Artois Area

Texaco Inc. is preparing location for Capital Company No. 1 to be drilled on the southwest quarter of Section 18-20n-2w in Glenn County.

COASTAL AREA

Phillips Offshore Completion

Phillips Petroleum Company completed and shut in State 2207 No. 15 at a total depth of 3820 feet. Completion data has not been released. Well No. 16 is drilling below 2000 feet. Both wells are located on projected Section 13-4n-34w offshore from Concepcion in Santa Barbara County.

Sespe Cable Tool Test

Imperial Oil and Gas Company (Cecil Basenberg) is grading rig site for Solomon No. 1 to be drilled on the northeast quarter of Section 32-5n-19w in Ventura County. The well will be drilled with Cable tools to about 1800 feet.

Capitan Wildcat Drilling

Pauley Petroleum, Inc., is drilling below 800 feet on Pauley-Gila No. 1 located on the northeast quarter of Section 4-4n-30w in Santa Barbara County. The well is about 3000 feet east of the Capitan Field and will be a 6500-foot Sespe test.

Oxnard Test Abandoned

Stateswide Oil Corp. drilled to a total depth of 6870 feet on Maulhardt No. 1 and abandoned the well without testing. Sidewall samples indicated slight showings from 6724-6734 feet. The abandonment was located on the northwest quarter of Section 36-2n-22w. Plans are under way to drill a second well.

Two Oakridge Wells

Union Oil Company of Calif. has staked locations for two Oakridge Field development wells. Oakridge No. 48-4 will be drilled on the southeast quarter of Section 4-3n-18w and Oakridge No. 49-9 on the northeast quarter of Section 9-3n-18w. Hylton Drilling Co. has the contract to do the drilling.

OTHER AREAS

Alaska

Standard Oil Company of California, Western Operations, Inc., as Operator for itself and Richfield Oil Corporation, will drill an exploratory well in the Swan Lake area of the Kenai Peninsula approximately 13 miles east of the Swanson River Oil Field. The Swan Lake area has been approved as a unit by the U. S. Geological Survey. Standard is to be the operator of the unit. To drill the well, it has been necessary to construct approximately 13 miles of graveled road into the area at a cost of over $300,000. Selection of the drill site followed an extensive seismographic survey utilizing both helicopter and tracked vehicles. The surface location of the well will be approximately 660 feet north and 1980 feet west from the southeast corner of Section 27-8n-7w, Seward Meridian.

Colorado

Shell Oil Company has announced a location for a second test on the Wray Mesa Unit in Western Colorado's Montrose County. Location for Wray Unit No. 2 has been staked on the northwest quarter of Section 32-47n-19w and will test the Mississippian at about 12,400 feet.

Montana

Sunray Mid-Continent Oil Company is drilling below 2000 feet on J. W. White No. 1 located on the southwest quarter of Section 17-25n-45e in Prairie Creek area of McCone County. The wildcat is northwest of the Richey Field and will test the Charles at about 6700 feet.

Union Oil Company of Calif. completed Stufft No. 417, an outpost test to the Cut Bank Field, pumping 85 b/d from the Madison perforations 3118-3123 and 3126-3132 feet. Located on the southeast quarter of Section 24-36n-6w in Glacier County, the completion was drilled to a total depth of 3158 feet and cemented 5½" casing on bottom.

Pure Oil Company is grading roads and rig site for August Tesarek No. 1 to be drilled on the northeast quarter of Section 26-19n-13e in Fergus County. The wildcat is in the Denton area and will test the Cambrian at about 4600 feet.

New Mexico

Mobil Oil Company is preparing to spud Apache-Boulder 12-14 No. 7 located on the northwest quarter of Section 14-28n-1w in Rio Arriba County. A Gallup test, the well is an outpost to a recent discovery.

British-American Oil Producing Company is drilling below 6000 feet on Navajo-E No. 1 after recovering 280 feet of oil and some sulphur water on a test of the Buff Zone interval 5680-5718 feet. The test is approximately five miles southeast of Paradox production at the Four Corners Field and will test the pre-Cambrian at about 7300 feet.

Utah

Shamrock Oil & Gas Company's Rock House Unit No. 4 established a potential of 103,000 mcf of gas per day on an open flow test of the Wasatch Zone. Flow was from six perforated and sand frac't intervals within 3597-4443 feet. Drilled to a total depth of 6304 feet and finding the Mesaverde dry, the completion was plugged back to 4519 feet inside the 7" casing cemented at 5300 feet, and completed as the first single zone completion on the Rock House Unit. Located on the northwest quarter of Section 9-11s-23e in Uintah County, the well logged 100 feet of producing formation.

Pure Oil Company is grading road and rig site for a Grand County wildcat to test the 19558-acre Big Flat Unit. Pure's test, Well No. 5, is located on the southeast quarter of Section 27-25s-19e and will test the Mississippian at about 8500 feet.

King-Stevenson Gas & Oil Company has staked location for Government-DiCarlo No. 1, a Uintah County wildcat on the northwest quarter of Section 29-5s-21e. The 7100-foot Mesaverde test is in the Asphalt Ridge area in the northern portion of the Uintah Basin.

Wyoming

Texaco Inc. is recovering 130 b/d oil and a like amount of water on a pump test of the Madison perforations 9109-9119 feet at Silver Tip Unit No. 55-33. The recovery is the first commercial production from the Madison in the Silver Tip Field. Located on the southeast quarter of Section 33-58n-100w in Park County, Texaco drilled the test to a total depth of 11,630 feet in pre-Cambrian and after plugging back to 9858 feet cemented 5" casing on top of the plug.

Continental Oil Company is drilling below 2500 feet on Boulder Gulch Unit No. 1 located on the southwest quarter of Section 27-45n-95w in Hot Springs County. Located five miles north of the town of Gebo, the well will test the Tensleep at approximately 12,000 feet and is the first drilling in the township.

Cabeen Exploration Company is grading roads and rig site for Larence No. 1 to be drilled on the northeast quarter of Section 2-16n-76w in Albany County. The well will test the Tensleep at about 4300 feet and is approximately ¾ mile north of Pennsylvanian production at the Herrick Field.

Mobil Oil Company is drilling below 2000 feet on Halverson No. F11-9-D located on the northwest quarter of Section 9-49n-69w in Campbell County. Mobil will test the Dakota at about 7000 feet and it is the first well to be drilled since the field's discovery by W. C. Leone's Halverson No. 1.

Texaco Inc. has staked location for Northern Pacific No. 1, a Park County wildcat on the northeast quarter of Section 21-57n-100w. Texaco's location is about five miles west of South Elk Basin and will test the Amsden at about 10,000 feet.

Amerada Petroleum Corp. will be the operator of the Frewen Unit in the eastern Green River Basin recently approved by the U.S.G.S. The 65,372-acre Unit is in 18 and 19n, 93 and 94 w in Carbon and Sweetwater Counties. A Mesaverde test will be drilled to 9750 feet with interest being held by Union Pacific Railroad, Mountain Fuel Supply, and Kenwood Oil Company.

THIS LAUGH

OFF!!

Small Fry, saying prayers: "Dear God, please give me a teacher who isn't a grouch and also understands me . . . By the way, this is the second time I've asked you about this."

A teacher gave her class this problem in arithmetic: If there are seven flies on your desk and you kill one, how many will remain?" "One," answered her most logical pupil, "the dead one."

A teacher passes along this third-grader's definition of a contraction: "A contraction is made by putting two words together to make one word. You leave out some of the letters, but you put in a catastrophe."

A Long Beach State College student, upon being asked why he had transferred from UCLA: "More parking space."

A visitor to the Tennessee mountains had made a precarious trip up an almost impassable trail when he came to a tumbledown one-room shack. Seeing the grizzled occupant, he panted, "Old Timer, it must be tough getting the necessities of life way up here, eh?"

"Yep," agreed the old fellow, shooting a squirt of tobacco juice. "And when you get 'em, most of the time they ain't fit to drink."

If a man can't see why a girl wears a strapless gown, she shouldn't.

A Dutchman was explaining the red-white-and-blue Netherlands flag to an American.

"Our flag has a connection with our taxes," he said. "We get red when we talk about them, white when we get our tax bills, and we pay them till we're blue in the face."

"That's just how it is in the U.S.A.," said the American. "Only we see stars, too."

Man, teaching wife to drive: "Go on green, stop on red, take it easy when I turn white."

The Lone Ranger and Tonto rode into a trap and found themselves surrounded by one thousand Indians on the warpath. The Indians began to charge.

"Tonto," shouted the Masked Man, "we're in trouble."

Tonto turned to him and snarled, "What do you mean, we, paleface?"

Two men were discussing automobiles. "Yes, sir," said one, "I believe the best economy is to trade every two years. That's what I've done. And do you know," he continued proudly, "I haven't missed a payment in 14 years."

The zoo keeper received an indignant complaint that the monkeys were playing poker and a warning that he should do something about it right away.

"That's all right," he soothed, "They're only playing for peanuts."

They were having dinner with some friends. Their small son was having trouble cutting his meat.

"Are you sure you can cut your meat, dear," asked the hostess.

"Oh, yes, thank you," he replied. "We have it as tough as this at home lots of times."

Husband, answering the phone: "I don't know. Call the weather bureau."

Pretty young wife: "Who was that?"

Husband: "Some sailor, I guess. Wanted to know if the coast was clear."

Matron to paratrooper on furlough: "Son, how many successful jumps must you make before you graduate?"

Paratrooper: "All of them, ma'am."

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